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10/528,397	03/17/2005	Paul Royston Harvey	PHNLO20845US	5014
7590 05/21/2008 Philips Intellectual Property & Standards 595 Miner Road Cleveland, OH 44143				
EXAMINER LARYEA, LAWRENCE N				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



# Office Action Summary

**Application No.**

10/528,397

**Applicant(s)**

HARVEY, PAUL ROYSTON

**Examiner**

Lawrence N. Laryea

**Art Unit**

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_



**DETAILED ACTION**

1. **This Office Action is responsive to the Amendment filed 24 November 2007.**

Claims 1-20 are now pending. The Examiner acknowledges the amendments to claims 1-4, 10, 17 and 18.

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. A Claim 10, line 8 recites "it." This limitation renders the claim indefinite because one cannot be certain what "it" is intended to refer to.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.



7. Claims 1-3, 8-10, 12, 15-19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by **Machida ( US Patent 7,110,805 previously cited)**.

8. **Machida** teaches a method of magnetic resonance imaging comprising the steps of: moving a subject **(P)** continuously along a predetermined path passing through the imaging volume, defining a sub-volume **(slice)** of the imaging volume that moves together with the subject, the sub-volume being selected such that the time of movement of the sub-volume within the imaging volume is sufficient for magnetic resonance image data acquisition of the sub-volume with a predefined resolution, performing a magnetic resonance image data acquisition for the sub-volume while the sub-volume remains within and moves continuously relative to the imaging volume, defining a subsequent sub-volume which neighbors the sub-volume on the predetermined path to perform a subsequent step of magnetic resonance image data acquisition for the subsequent sub-volume as the subject and the subsequent sub-volume moves continuously through the imaging volume **(See Abstract, Figures 4A-4D, Col. 2, lines 45-63, Col. 3, lines 4-13)** and inherent computer program (controller) configured to perform the MR imaging and also control the MRI systems **( See Figure 1, Col. 5, lines 46-67; Col. 6, lines 1-32)** and display unit **(12)**

9. Re Claims 2 and 3: **Machida** teaches a method of magnetic resonance imaging including a two or three-dimensional imaging and applying gradient pulses that define a slab which moves with the subject **(See Col. 6, lines 12-60)**.

10. Re Claims 9 and 16: **Machida** teaches a method of magnetic resonance imaging wherein the sub-volumes having a first extension along the predetermined path, the



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imaging volume having a second extension along the predetermined path, the second extension (**Imaging Range**) being at least twice the first extension (**See Figures 4A-4D**).

11. Re Claims 8 and 15: **Machida** teach a method of magnetic resonance imaging wherein the magnetic resonance image data acquisition being cyclically repeated, whereby one repetition is performed for each one of the sub-volumes (**See Claim 1**).

12. Re Claims 17 and 18: **Machida** teaches a method of magnetic resonance imaging wherein the predetermined path is being a straight line and the magnet system comprising a cylindrical magnet and the predetermined path curved (**See Fig. 1**).

Re Claim 19: **Machida** teaches a method of magnetic resonance imaging which is capable of correcting the acquired magnetic resonance image data for zero order phase error accumulated due to the continuous moving (**See Col. 3, lines 29-37**) to prevent artifacts on account of the phase disturbances or suppressed (**See Col. 3, lines 29-55**).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 4, 5 and 13 are rejected under 35 U.S.C. 103(a) as obvious **Machida** as applied to claim 1 above.



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15. **Machida** does not expressly disclose the sub-volume having an extension along the predetermined path between 3 and 7 cm and the speed of movement being between 0.5 and 5 mm per second.

16. **Machida** teaches a sub-volume having an extension along the predetermined path and a required speed for the movement (**See Col. 8, lines 56-67; Col. 9, lines 1-67**).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify **Machida** because Applicant has not disclosed that the sub-volume having an extension along the predetermined path between 3 and 7 cm and a speed of 0.5 to 5 mm per second provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the length, the speed and applicant's invention to perform equally well with any required length and speed during MRI wherein a subject is continuously moved through the magnetic field.

Therefore, it would have been prima facie obvious to modify **Machida** to obtain the same method as specified in claims 4,5 and 13 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of **Machida**.

17. **Claims 6, 7, 11 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Machida** as applied to claim 1 above, and further in view of **Madore (US 6,714,010)**.



18. **Machida** teaches the claimed invention, see rejection supra; however **Machida** does not teach that MRI system includes a SENSE-type parallel imaging technique.
19. **Madore** teaches MRI system wherein parallel and SENSE-type parallel imaging technique are used (**See Abstract and Claims 10 and 11**).

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the MRI system of **Machida** to have incorporated the teachings of **Madore** to improve temporal resolution in Magnetic resonance imaging (**See Col. lines 15-19**) as taught **Madore**.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAWRENCE N. LARYEA whose telephone number is (571)272-9060. The examiner can normally be reached on 9:30 a.m.-5:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric F Winakur/  
Primary Examiner, Art Unit 3768

LBL